

ABSTRACT OF THE DISCLOSURE

A cell tray has a multi-dimensional array of cells in precise, equally spaced wells (cubicles or silos) containing medium of interest. The ordered cell array enables automated processing as well as simultaneous monitoring and analyzing of a large matrix of cells, biological fluids, chemicals and/or solid samples. The invention is an integrated device and is fabricated into substrates similar to microscope slides. The ordered array of cells in precise locations helps in parallel analysis and processing of cells simultaneously. Each cell cubicle or silo in the array is located equidistant from its nearest neighbors in an orthogonal direction. The location of each well can be precisely measured and recorded in an automated processing system. Included in the bottom of each cell well is an optional micro-lens. . An array of probes provides parallel cell processing and monitoring capabilities, including microinjection and microscope analysis. The cell tray when integrated with the Precision Optical Intracellular Near Field Imaging/Spectroscopy Technology (POINT or NANOPOINT) device results in sub-wavelength high-resolution imaging with a nanosensor array capable of imaging inner regions of living cells without destroying its natural environment.